



Europäisches Patentamt
European Patent Office
Office européen des brevets



⑪ Publication number:

0 416 181 A1

⑫

EUROPEAN PATENT APPLICATION

⑬ Application number: 89309126.4

⑮ Int. Cl.5: B43K 29/12

⑯ Date of filing: 08.09.89

⑭ Date of publication of application:
13.03.91 Bulletin 91/11

⑯ Inventor: Chang, Shi-Lung
2F, No. 82, Chien-Kuo N. Road, Sec. 3
Taipei(TW)

⑯ Designated Contracting States:
DE FR GB IT NL

⑯ Representative: Paget, Hugh Charles Edward
et al
MEWBURN ELLIS 2 Cursitor Street
London EC4A 1BQ(GB)

⑰ Applicant: Chang, Shi-Lung
2F, No. 82, Chien-Kuo N. Road, Sec. 3
Taipei(TW)

④ Paper-holding writing instrument.

⑤ A note paper-holding pen includes a note paper reel (4), having a paper roll (6) with its two opposite ends (61) coated and bonded by an adhesive, rotatably mounted in a penholder (1) and a rotating knob (3) clickingly rotatable the note paper reel (4) to reel off the note paper as originally wound on the reel (4) through a longitudinal slit (12) which is formed on the penholder (1) having acute wedges 121,122 formed at the slit (12) to tear the adhesive-bonded note paper, so that the knob (3) can be rotated to easily unroll the note paper directly from the pen for an immediate writing use.

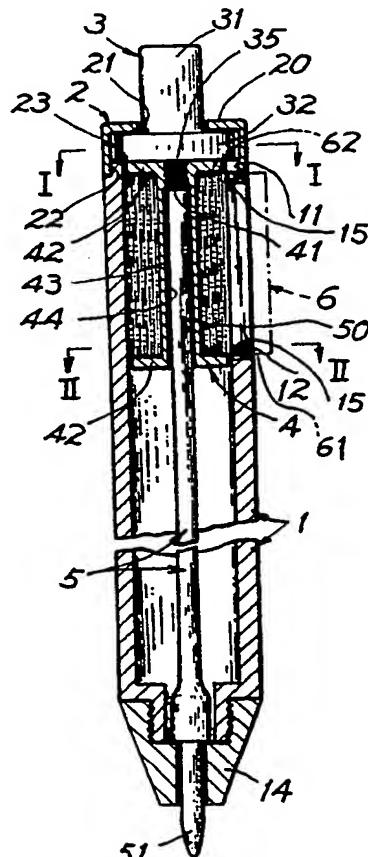


FIG. 2

EP 0 416 181 A1

BEST AVAILABLE COPY

Xerox Copy Centre

PAPER-HOLDING WRITING INSTRUMENT

This invention relates to a writing instrument, e.g. a pen or pencil, with a body adapted to hold a roll of paper.

R. C. Moore taught a paper roll in his U. S. Patent No. 2,512,168 having an adhesive applied to two opposite ends of a paper roll to bind the successive convolutions of the web firmly in place to prevent its loosening. However, the paper must be torn from the roll between dotted lines (2) and projected through a slot of the tube, leaving a residual upper end portion (1c) and a lower end portion (1b) on the core (6). It means that the paper can not be easily and conveniently released from the tube (7) and must be forcibly torn by a user's pulling force. Meanwhile, the residual paper portions (1c, 1b) are still remained on the core (6) to reduce the useful writing area of the paper as torn outwardly through the slot (18).

When a paper is cut along the slot (18), there is no marginal paper portion protruding beyond the slot (18) for the pulling by a user's hand for neat use. It is very difficult to withdraw the paper which may be retracted inwardly from the slot to cause its inconvenience for use.

The present inventor has found the drawbacks of conventional paper roll such as disclosed by R.C. Moore and invented the present note paper-holding pen.

According to the present invention, there is provided with a note paper-holding pen including a note paper reel having a note paper roll rolled on the reel rotatably mounted in a pen holder and a rotating knob clickingly rotating the note paper reel to unroll the note paper through a longitudinal slit formed in the holder for writing purpose, wherein a wedge portion is formed at the longitudinal slit for tearing the rolled paper as bonded on the roll by adhesive for an easier tearing and unrolling of the note paper.

The present invention will be further described with reference to the accompanying drawings, in which:

Figure 1 is a perspective illustration showing all elements of an embodiment of the invention;

Figure 2 is a sectional elevation of the embodiment;

Figure 3 is a cross-sectional drawing of the embodiment as viewed from I-I direction of Figure 2;

Figure 4 is a cross-sectional drawing of the present embodiment as viewed from II-II direction of Figure 2;

Figure 5 is a perspective illustration showing a tearing operation of the note paper roll;

Figure 6 shows another preferred embodiment

of the present invention, and

Figure 7 shows still another preferred embodiment of the present invention.

As shown in Figures 1 - 4, the pen described

comprises: a penholder 1, an upper cap 2, a rotating knob 3, a note paper reel 4, a central stick 5 which may be e.g. pencil lead or the inner ink reservoir of a ball pen, and a note paper roll 6 operatively wound on or reeled off the note paper reel 4 with two opposite ends 61 of the roll 6 coated by adhesive 62.

The penholder 1 is formed as a generally longitudinal cylinder having an inner hollow bore portion 1a and having a male-threaded portion 11 formed on its top end, a longitudinal slit 12 formed in an upper portion of the penholder 1, and a lower cap 14 fixed on the lower end of the holder limiting a lower end of the central stick 5. The longitudinal slit 12 includes: a pair of longitudinal edges 121, 122 generally tangential to the circumference of the bore portion 1a (Figure 4), a pair of wedge portions 15 respectively formed on two opposite ends on a first longitudinal edge 121 approximate and corresponding to two opposite ends 61 of the note paper roll and a saw-toothed portion 13 longitudinally formed along an acute-angle edge at the outermost end of a second longitudinal edge 122.

The upper cap 2 includes an upper round cover 20 having a central hole 21, a female-threaded portion 22 formed on its lower perimeter engageable with the male-threaded portion 11 of the penholder 1, and a plurality of ratchet teeth 23 circumferentially formed on a cylindrical wall inside the cap 2.

The rotating knob 3 includes a stem portion 31, a round disk 32 formed on a lower portion of the stem 31 having a recess 33 for inserting a spring pawl 34 therein, and a male-threaded rod portion 35 protruding downwardly from disk 32. The round disk 32 with its spring pawl 34 is clickingly rotatably engageable with the ratchet teeth 23 inside the cap 2 to allow a single-direction rotation of the knob. The stem portion 31 is rotatably mounted in the central hole 21 of the cap 2.

The note paper reel 4 includes a central axle 43 having a central hole 44 rotatably engageable with an upper stick portion 50 of the central stick 5, two round flanges 42 respectively disposed on both upper and lower ends of the axle 43 rotatably mounted in the bore portion 1a, and a female-threaded hole 41 formed in the upper flange 42 engageable with the male-threaded portion 35 of the rotating knob 3 for securing the reel 4 to the knob 3.

The note paper roll 6 is a rolled paper strip

originally wound on the axle 43 of the reel 4 having an adhesive 62 coated on two opposite ends 61 of the roll 6 to prevent from its loosening. The length of the longitudinal slit 12 should be slightly larger than the width of the note paper roll 6. After securing the reel 4 on the knob 3, the note paper roll 6 should be suitably positioned to correspond the slit 12 so that the note paper can be reeled off through the slit 12.

When it is intended to use the note paper reeled in the penholder 1, the stem portion 31 is rotated in direction R to rotate the reel 4 to reel off the note paper outwardly through the slit 12 to a desired length and the paper is then cut off against the saw-toothed portion 13 of the slit 12. During the rotation of knob 3 in direction R, the spring pawl 34 is clickingly slipping away from each ratchet tooth to drive the reel 4. However, once the note paper is drawn to the desired length, the knob 3 is no more rotated and the pawl will be resiliently engaged with the ratchet tooth 23 to brake the rotation of the reel 4 to stop the unwanted releasing of the note paper.

Another preferred embodiment of the present invention is shown in Figure 6, which comprises: a cylindrical jacket 10 having a longitudinal slit 12 formed in the jacket and a hollow bore portion formed inside the jacket, an upper cap 2 having a plurality of ratchet teeth 23 circumferentially formed on the inside wall of the cap and having a central hole 21, a rotating knob 3 having a stem 31 protruding through the central hole 21 and a round disk 32 with a spring pawl 34 clickingly engageable with the ratchet teeth 23 of the cap, a note paper reel 4 secured to the knob 3 and having two circular flanges rotatably mounted within the hollow bore portion of the jacket 10 and a note paper roll 6 having its two opposite ends 61 coated by an adhesive wound on the reel 4 adapted to be operatively reeled off through the slit 12 upon the rotation of the knob 3. The jacket 10 is formed with a socket 102 under a lower plate portion 101 so that the jacket 10 may be mounted on a top portion 1b of a penholder or be inserted with a nib 51 of a conventional pen, ball pen or pencil. The jacket 10 may be made of rubber so that the socket 102 may be snugly mounted on the penholder of a traditional pen or pencil. By the way, the device described may optionally be mounted on any other type of traditional pen or pencil to diversify its multiple uses such as for writing use and for supplying note paper.

The adhesive 62 used in this invention to coat on two opposite ends 61 of the note paper roll 6 may be for example

a polyvinyl acetate, an acrylics based on acrylate and methacrylate polymers, epoxy resins, isocyanates, or other suitable adhesives. A prefer-

able adhesive such as polyvinyl acetate (PVAc) as used in this invention can be diluted with water to form an aqueous solution of 50% by weight. After coating and curing of PVAc on the ends 61 of note paper roll 6, a tearing strength of 0.66 - 1.54 kg/cm² should be applied to tear the note paper as bonded by the adhesive. The "tearing strength" as designated herewith means a strength applied on the note paper as actuated by the rotating knob 3 to release from the longitudinal slit 12 of this invention by overcoming the bonding strength of the adhesive bonding the convolutions of both ends 61 of the roll 6.

Hence, the adhesive used in this device must be carefully selected to provide a suitable bonding strength to bond the ends 61 of the note paper roll 6 so as to help a smooth unrolling operation of the note paper roll through the slit 12.

Each wedge portion 15 is mounted on the first edge 121 as shown in Figures 5 and 4 includes: an acute portion 151 formed on its front end and an arcuate spring plate 152 protruding divergently and outwardly from the acute portion 151 resiliently contacting the second longitudinal edge 122 of the slit 12.

When the note paper is unrolled and released through the slit 12 of the pen, the acute portion 151 of the wedge portion 15 pokes inwardly to tear the paper sheet from its adhesive-bonded end 61 (Force F1) and the arcuate spring plate 152 further forces the paper sheet upwardly to help tear the paper from its adhesive-bonded situation (Force F2) so that the note paper is unrolled and released easily from the slit 12 when rotating the knob 3 in direction R as shown in Figures 5 and 4.

Still another preferred embodiment of the present invention is shown in Figure 7 wherein the aforementioned pair of wedge portions 15 are each formed as a longitudinal wedge portion having a longitudinal acute end portion 151a directly formed on the first edge 121 for tearing the bonded note paper as coated by adhesive. In a simple modification of the pen structure (not shown), the knob 3 and the cap 2 may be combined to form a simplified knob clickingly rotated on an upper end portion of the penholder and the two flanges 42 of the reel 4 may also be omitted.

The note-paper holding pen described may provide the following advantages over a conventional paper roll pen:

1. Just rotating the knob 3, the note paper can be easily unrolled through the slit 12 as the wedge portion 15 may automatically tear the adhesive-bonded paper from the note paper roll 6.

2. The paper roll will not be loosened or unrolled to cause tangling or obstruction of the paper inside the penholder when unrolling the paper

roll for outwardly releasing use.

3. The note paper roll 6 can be easily refilled by opening the cap 2 and dismantling the knob 3 fixed on the reel 4.

4. There is no need to always protrude an outermost marginal portion of the note paper outwardly beyond a slot for tearing or withdrawing the paper as usually found in a conventional paper roll reeled in a tube, since the paper is not torn by a user's hand and is outwardly released merely by rotating the top knob 3.

Claims

1. A note paper-holding pen comprising:
 a penholder (1) formed as a generally longitudinal cylinder having an inner hollow bore portion (1a) and having a male-threaded portion (11) formed on a top end of said penholder (1), a longitudinal slit (12) formed in an upper portion of said penholder (1) and a lower cap (14) fixed on a lower end of said penholder (1) limiting a lower end of a central stick (5) selected from a pencil lead and an inner ink reservoir of a ball pen;
 an upper cap (2) having an upper round cover (20) formed with a central hole (21) therein, a female-threaded portion (22) formed in a lower perimeter of the cap (2) engageable with the male-threaded portion (11) of said penholder (1), and a plurality of ratchet teeth (23) circumferentially formed on a cylindrical wall inside said cap(2);
 a rotating knob (3) having a stem portion (31) rotatably mounted in said central hole (21) of said cap(2), a round disk (32) secured to said stem portion (31) having a recess (33) inserted with a spring pawl (34) therein, and a male-threaded rod portion (35) protruding downwardly from said round disk (32), said round disk (32) with said spring pawl (34) clickingly rotatably engageable with said ratchet teeth (23) of said cap (2) to allow a single-direction rotation of said knob (3);
 a note paper reel (4) including a central axle (43) rotatably mounted on an upper stick portion (50) of said central stick (5) , two round flanges (42) disposed on an upper end and a lower end of said axle (43) rotatably mounted in the bore portion (1a) of said penholder (1) , and a female-threaded hole (41) formed on the upper flange engaged with said male-threaded rod portion (35) of said knob (3); and
 a note paper roll (6) having a rolled paper strip wound on said axle (43) of said reel (4), and operatively unrolled to be released through said slit (12) in said penholder (1), the improvement which comprises:
 said longitudinal slit (12) including:
 a pair of longitudinal edges (121,122) generally

tangential to a circumferential surface of said bore portion (1a) of said pen holder (1), a pair of wedge portions (15) respectively formed on two opposite ends on a first longitudinal edge (121) of said longitudinal slit (12) approximate and corresponding to two opposite ends (61) of said note paper roll; and

5 said note paper roll (6) having two opposite ends (61) of said roll (6) coated and bonded by an adhesive (62), whereby upon an unwinding rotation of said knob (3) , a note paper may be torn from said note paper roll (6) and released through said slit (12).

2. A note paper-holding pen according to Claim 1, 15 wherein a said wedge portion (15) includes an acute portion (151) formed on a front end portion of said wedge portion (15) and an arcuate spring plate (152) protruding divergently and outwardly from said acute portion (151) to resiliently contact a second longitudinal edge (122) of said longitudinal slit (12) opposite to said first longitudinal edge (121) of said longitudinal slit (12).

3. A note paper-holding pen according to Claim 1, 20 wherein a said wedge portion (15) includes a longitudinal acute end portion (151a) directly formed on said first longitudinal edge (121) of said longitudinal slit (12).

4. A note paper-holding pen comprising:
 a penholder (1) having a nib (51) formed on its one 30 end and a top portion (1b) formed on the other end of said penholder opposite to said nib (51);
 a cylindrical jacket (10) having a hollow bore portion formed therein and a longitudinal slit (12) formed in said jacket (10), a lower plate portion (101) formed on a lower portion of said cylindrical jacket (10), and a socket (102) formed under said lower plate portion (101) operatively mounted on the top portion (1b) of the penholder or inserted with said nib (51) of said penholder (1);

35 an upper cap (2) having a central hole (21), and a plurality of ratchet teeth (23) circumferentially formed on an inside wall of said cap (2);
 a rotating knob (3) having a stem (31) protruding through said central hole (21) of said cap (2) and a round disk (32) with a spring pawl (34) clickingly engageable with said ratchet teeth (23) of said cap (2);

40 a note paper reel (4) secured to said knob (3) and rotatably mounted in said hollow bore portion of said cylindrical jacket (10); and

45 a note paper roll (6) wound on said reel (4) and operatively reeled off through said slit (12) upon the rotation of said knob (3),

the improvement which comprises:

50 said longitudinal slit (12) including:

55 a pair of longitudinal edges (121,122) generally tangential to a circumferential surface of said bore portion of said cylindrical jacket (10), a pair of

wedge portions (15) respectively formed on two opposite ends on a first longitudinal edge (121) of said longitudinal slit (12) approximate and corresponding to two opposite ends (61) of said note paper roll (6); and

5

said note paper roll (6) having two opposite ends (61) of said roll (6) coated and bonded by an adhesive (62),

whereby upon an unwinding rotation of said knob (3), a note paper may be torn from said note paper roll (6) and released through said slit (12).

10

5. A writing instrument, or attachment for a writing instrument, comprising:

a body (1);

15

a paper roll (6) mounted rotatably in the body (1), the body (1) having a longitudinal slit (12) through which paper from the roll (6) is to be dispensed, and said roll (6) having longitudinally-spaced adhered portions (62), preferably at opposite ends thereof, at which its paper layers are adhered together to maintain said roll (6);

20

a knob (3) mounted rotatably with respect to the body (1) and adapted to drive the roll (6) in rotation in one direction only, to dispense paper through the slit (12); characterised in that

25

wedge portions are provided at the longitudinal slit (12) at longitudinal positions corresponding to the adhered portions (62) of the roll (6), and pointing towards said roll (6) to assist in separation of the adhered layers as paper is dispensed.

30

35

40

45

50

55

5

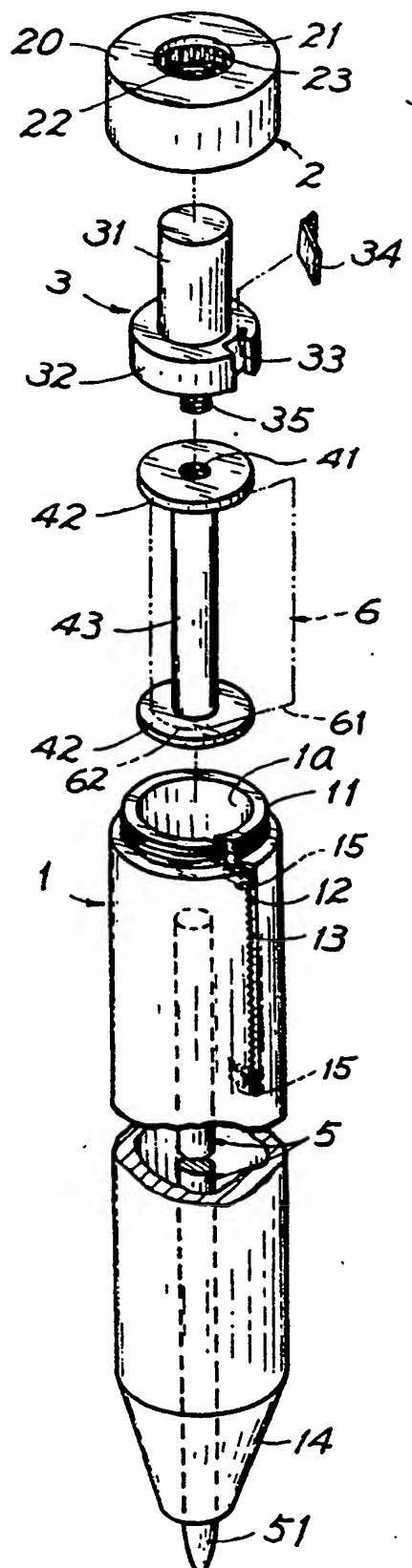


FIG.1

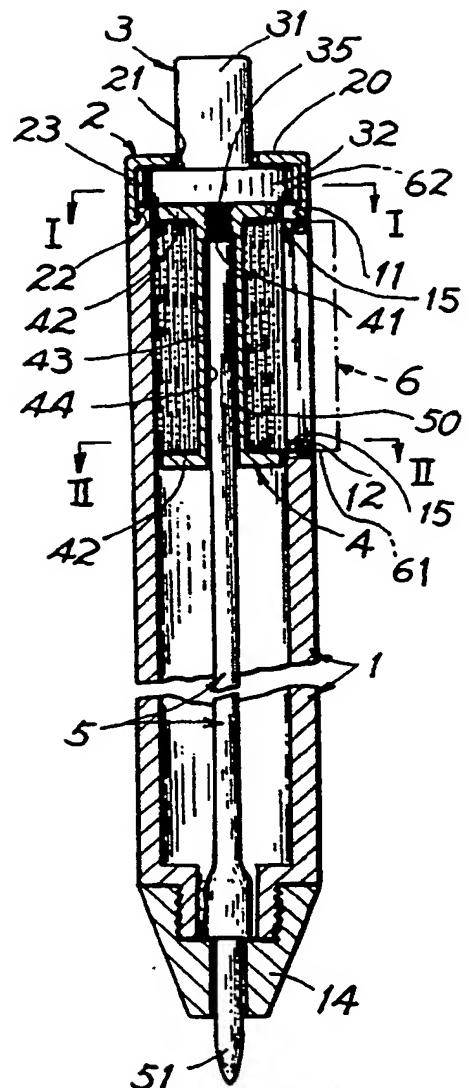


FIG.2

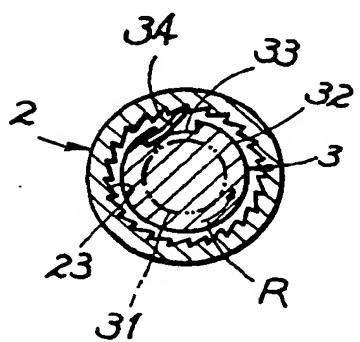
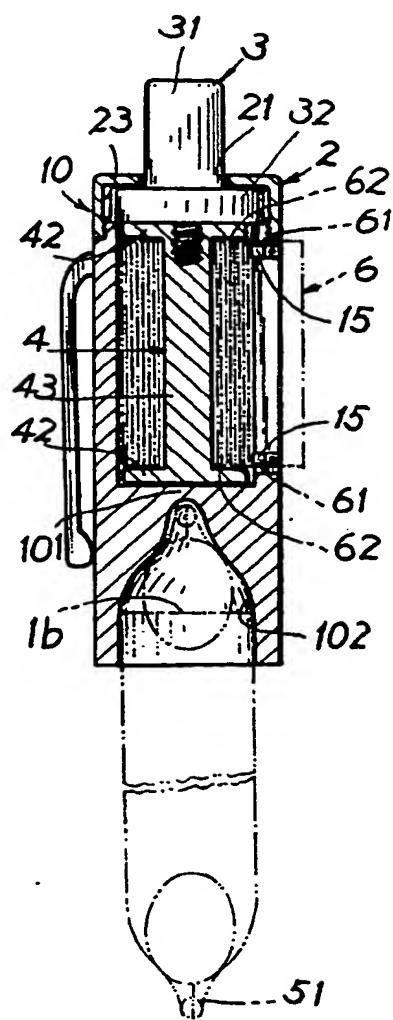
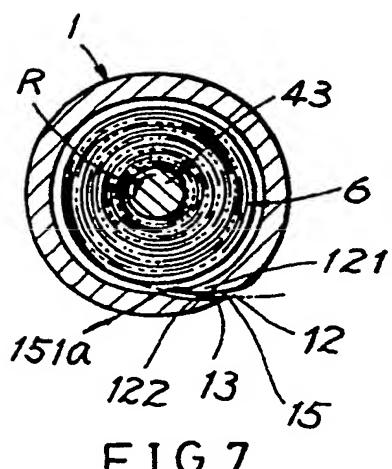
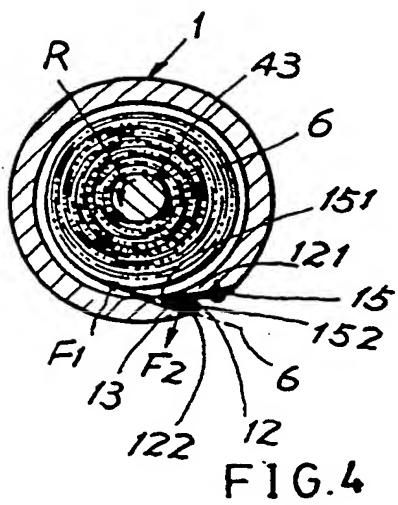
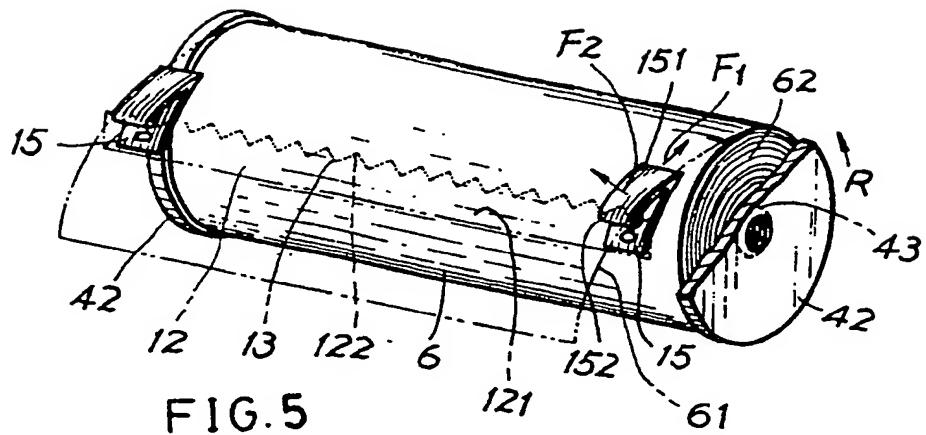


FIG.3

BEST AVAILABLE COPY





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 30 9126

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A, D	US-A-2 512 168 (MOORE) * Whole document * ---	1	B 43 K 29/12
A	US-A-3 963 358 (HOUSER) ---		
A	US-A-1 545 399 (CLENNAN) ---		
A	DE-C- 453 966 (HUBNER) ---		
A	DE-C- 451 884 (BOLTON) ---		
A	US-A-2 732 817 (ROBINSON) -----		
TECHNICAL FIELDS SEARCHED (Int. Cl.5)			
B 43 K			
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
THE HAGUE	04-05-1990	LAMMINEUR P.C.G.	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone		T : theory or principle underlying the invention	
Y : particularly relevant if combined with another document of the same category		E : earlier patent document, but published on, or after the filing date	
A : technological background		D : document cited in the application	
O : non-written disclosure		L : document cited for other reasons	
P : intermediate document		& : member of the same patent family, corresponding document	